

2021 ACFRT Post graduate Studentship grant.

“Investigation of factors influencing glucose control in cystic fibrosis”.

The first year of my grant has been a busy time with a number of projects happening at the same time.

My first project – “a retrospective audit of the use of sitagliptin in an adult CF clinic” is currently in write up stage for journal submission. This project supported our initial hypothesis that the long-term use of sitagliptin (24 months – 36months) appears to improve glucose control and perhaps lengthen the time from CFIGT to CFRD. This initial project formed the basis of my other 3 projects. The recruitment of participant and the study procedures of all these projects has completed and I have now spent a considerable amount of time in the lab processing samples collected to investigate glucose metabolism. These three projects utilised either a Oral Glucose Tolerance Test (OGTT) or a Mixed Meal Tolerance Test (MMTT) to examine glucose metabolism after taking sitagliptin a DPPIV inhibitor and also after taking a CFTR modulator (Lumacaftor/Ivacaftor – “Orkambi”) for 12 months. Utilising these tests, I have been able to examine the effects on glucagon, insulin, GLP1, GIP, C-peptide and CRP in a pre/post test design using Elisa’s. My first year has been spent in the laboratory completing numerous 96 well Elisa plates, in an attempt to determine if there have been any positive signals. During my second year I will be analysing the data obtained through the use of these Elisas, determining whether these medications have any effect on improving glucose control. I will also attempt to analyse whether one testing method for glucose metabolism is more specific for CF individuals (MMTT, OGTT or measurement of HbA1c).

Early data analysis is proving to provide “positive signals” for both CFTR modulation and sitagliptin but this needs to be examined more robustly.